

Clean Version of Claims submitted under MPEP §714.16

1. A method for manufacturing a laminate product, said method comprising:
coating a first surface of a sheet of kraft paper with a melamine resin, said melamine resin penetrating a first portion of said kraft paper and enabling said coated kraft paper sheet to counteract force resulting from a sheet of laminate material to be included in said laminate product;

coating a second surface of said kraft paper sheet with phenolic resin, said phenolic resin penetrating a second portion of said kraft paper sheet;

forming a backer laminate comprising said kraft paper sheet;

forming a decorative laminate comprising said sheet of laminate material; and

forming said laminate product, said forming of said laminate product comprising:

coupling said decorative laminate to a first surface of a substrate; and

coupling said backer laminate to a second surface of said substrate such that said kraft paper sheet is an outermost layer of said laminate product.

2. The method of claim 1 further comprising:

controlling an amount of said melamine resin to be applied to said first surface of said kraft paper sheet based on a desired penetration level of said kraft paper sheet to allow a desired amount of said phenolic resin to be absorbed by said kraft paper sheet.

3. The method of claim 2 wherein said controlling comprises:

removing from said first surface of said kraft paper sheet excess melamine resin.

4. The method of claim 2 wherein said controlling comprises:

positioning an engagement mechanism to provide a desired bias on said kraft paper sheet such that said kraft paper sheet engages a first coating roller with a selected amount of pressure to remove excess melamine resin.

5. The method of claim 2 further comprising:

controlling an amount of said phenolic resin to be applied to said second surface of said kraft paper sheet based on a desired penetration level of said kraft paper sheet to allow a desired amount of said melamine resin to be absorbed by said kraft paper sheet.

6. The method of claim 2 further comprising:

controlling an amount of said phenolic resin to be applied to said second surface of said kraft paper sheet to penetrate said kraft paper sheet with a desired amount of said phenolic resin without causing undesired interaction with said melamine resin.

7. The method of claim 6 further comprising:

removing from said second surface of said kraft paper sheet excess phenolic resin to maintain a desired level of penetration of said kraft paper sheet by said phenolic resin and to allow a desired amount of said melamine resin to be absorbed by said kraft paper sheet.

8. The method of claim 7 further comprising:

providing a metering device with a plurality of grooves of predetermined spacing to remove from said second surface of said kraft paper sheet said amount of said excess phenolic resin.

9. The method of claim 1 further comprising:

determining a ratio of said melamine resin and phenolic resin to be applied to said kraft paper to form a suitable balancing layer of said melamine resin on said first surface and to prevent said phenolic resin from seeping through to said first surface of said kraft paper.

10. The method of claim 9 wherein said ratio of said melamine resin and said phenolic resin to be applied to said first and second surfaces, respectively, of said kraft paper is approximately 3:2.

11. The method of claim 1 further comprising:

determining a first conditioning attribute for curing said melamine resin to maintain a portion of said melamine resin substantially on said first surface of said kraft paper sheet and allowing a remaining portion of said melamine resin to penetrate said kraft paper sheet up to a predetermined level.

12. The method of claim 11 wherein said first conditioning attribute is selected from the group consisting of:

temperature;
pressure;
a catalyst; and
moisture level.

13. The method of claim 11 further comprising:
determining a second conditioning attribute for curing said phenolic resin to achieve a desired penetration level of said kraft paper sheet.

14. The method of claim 13 wherein said second conditioning attribute is selected from the group consisting of:

temperature;
pressure;
a catalyst; and
moisture level.

15. The method of claim 13 further comprising:
curing said melamine resin by providing said first conditioning attribute, and curing said phenolic resin by providing said second conditioning attribute.

16. The method of claim 15 wherein said first and second conditioning attributes are provided by a curing device.

17. The method of claim 16 wherein said curing device is at least one device selected from the group consisting of an oven, a refrigeration device, a wetting device, and a drying device.

18. The method of claim 1 further comprising:
curing said kraft paper sheet; and
adjusting a period said kraft paper is cured to allow proper curing of said resins.

19. The method of claim 1 further comprising:
exposing said kraft paper sheet; to a conditioning unit;
controlling a rate at which said kraft paper is exposed to said conditioning unit; and
maintaining a conditioning attribute of said conditioning unit to prevent seepage of
said phenolic resin onto said first surface of said kraft paper, and maintaining said desired
amount of said melamine resin on said first surface of said kraft paper, penetrating a first
portion of said kraft paper, and wherein said conditioning attribute is selected from the group
consisting of:

temperature;
pressure;
a catalyst; and
moisture level.

20. The method of claim 1 wherein said first coating step further comprises:
selecting a size of particles to be suspended in a solution to form said melamine resin
to allow said melamine resin to penetrate said kraft paper sheet up to a desired level; and
suspending particles of selected size to form said melamine resin to achieve a desired
penetration level of said kraft paper sheet.

21. The method of claim 1 wherein said sheet of laminate material comprises an
overlay sheet.

22. The method of claim 1 wherein said decorative laminate comprises a
decorative sheet.

23. The method of claim 1 wherein said decorative laminate comprises at least one
sheet of kraft paper impregnated with phenolic resin.

24. The method of claim 1 wherein said substrate comprises at least one material
selected from the group consisting of plywood, particle board, chipboard, and fiberboard.

25. The method of claim 1 wherein said backer laminate further comprises at least
one additional sheet of laminate material; and
wherein said phenolic resin enables mechanical bonding of said kraft paper sheet to
one of said at least one addition sheets of laminate material of said backer laminate.

26. The method of claim 25 wherein said at least one additional sheet of laminate material comprises at least one kraft paper sheet.

27. The method of claim 1 wherein said melamine resin is applied to said first surface before said phenolic resin is applied to said second surface to prevent said phenolic resin from penetrating said kraft paper beyond a desired level and to allow said melamine resin to penetrate said kraft paper up to a desired level.

28. The method of claim 1 wherein said melamine resin is melamine formaldehyde resin.

29. A kraft paper sheet used in a laminate product, comprising:
a first surface coated with melamine resin, said melamine resin penetrating a first portion of said kraft paper sheet and enabling said coated kraft paper sheet to counteract force resulting from a sheet of laminate material to be included in said laminate product; and
a second surface coated with phenolic resin, said phenolic resin penetrating a second portion of said kraft paper sheet and providing bonding in said end product.

30. The kraft paper sheet of claim 29, wherein said kraft paper sheet balances another sheet of said laminate product.

31. The kraft paper sheet of claim 29, wherein said kraft paper sheet is applied in said laminate product to a surface selected from the group consisting of a decorative layer and a backer layer.

32. The kraft paper sheet of claim 29, wherein said kraft paper sheet protects said end product from the affects caused due to a strain selected from the group consisting of a thermal strain, a mechanical strain, a chemical strain, and a barometric strain.

33. The kraft paper sheet of claim 29, wherein a portion of said melamine resin stays substantially on said first surface of said kraft paper sheet and another portion of said melamine resin penetrates said kraft paper sheet up to a desired level.

34. The kraft paper sheet of claim 29, wherein said phenolic resin penetrates said kraft paper sheet up to a desired level.

35. The kraft paper sheet of claim 29, wherein said melamine resin is melamine formaldehyde.

36. A sheet for use in a melamine resin protected laminate product, said sheet comprising:

a kraft paper sheet;

melamine resin coating a first side of said kraft paper sheet and penetrating a first portion of said kraft paper sheet; and

phenolic resin coating an opposite side of said kraft paper sheet and penetrating a remaining portion of said kraft paper sheet, said phenolic resin adapted to migrate to cross-link with phenolic resin of another sheet of said laminate product and thereby provide structural bonding into said remaining portion of said kraft paper sheet.

37. A laminate product comprising:

a decorative sheet;

a protective coating of melamine resin coating disposed on a decorative surface of said decorative sheet;

at least one layer of phenolic resin bonding said decorative sheet to said laminate product; and

a kraft paper balancer sheet comprising:

a first surface coated with melamine resin, said melamine resin penetrating a first portion of said kraft paper sheet and enabling said coated kraft paper sheet to counteract force resulting from said melamine of said protective coating; and

a second surface coated with phenolic resin, said phenolic resin penetrating a second portion of said kraft paper sheet and providing bonding of said kraft paper sheet to said laminate product.